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OHIO STATE UNIVERSITY, COLUMBUS, OHIO



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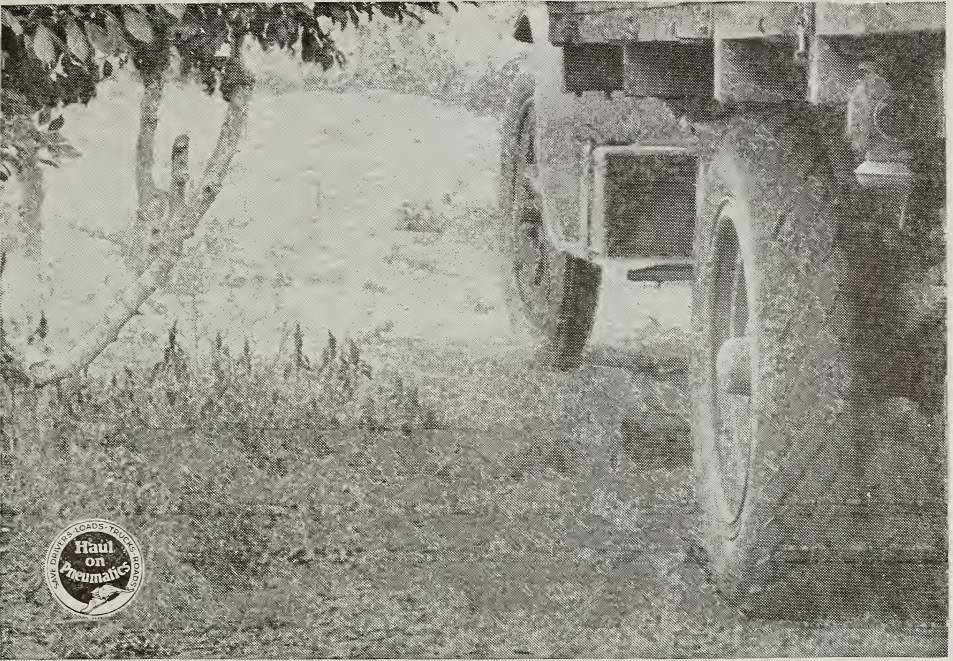
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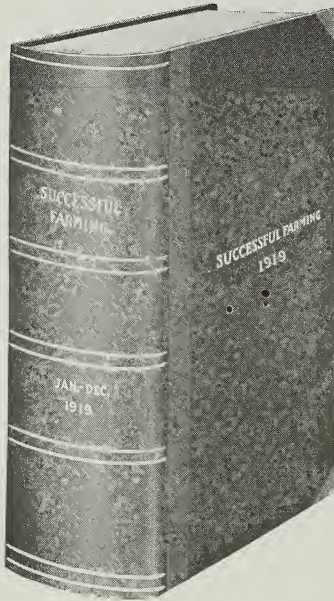
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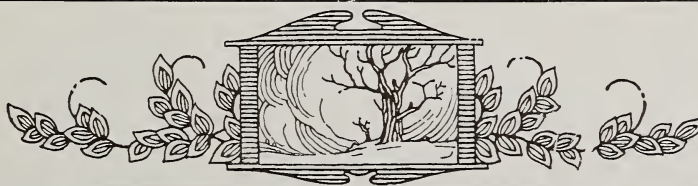
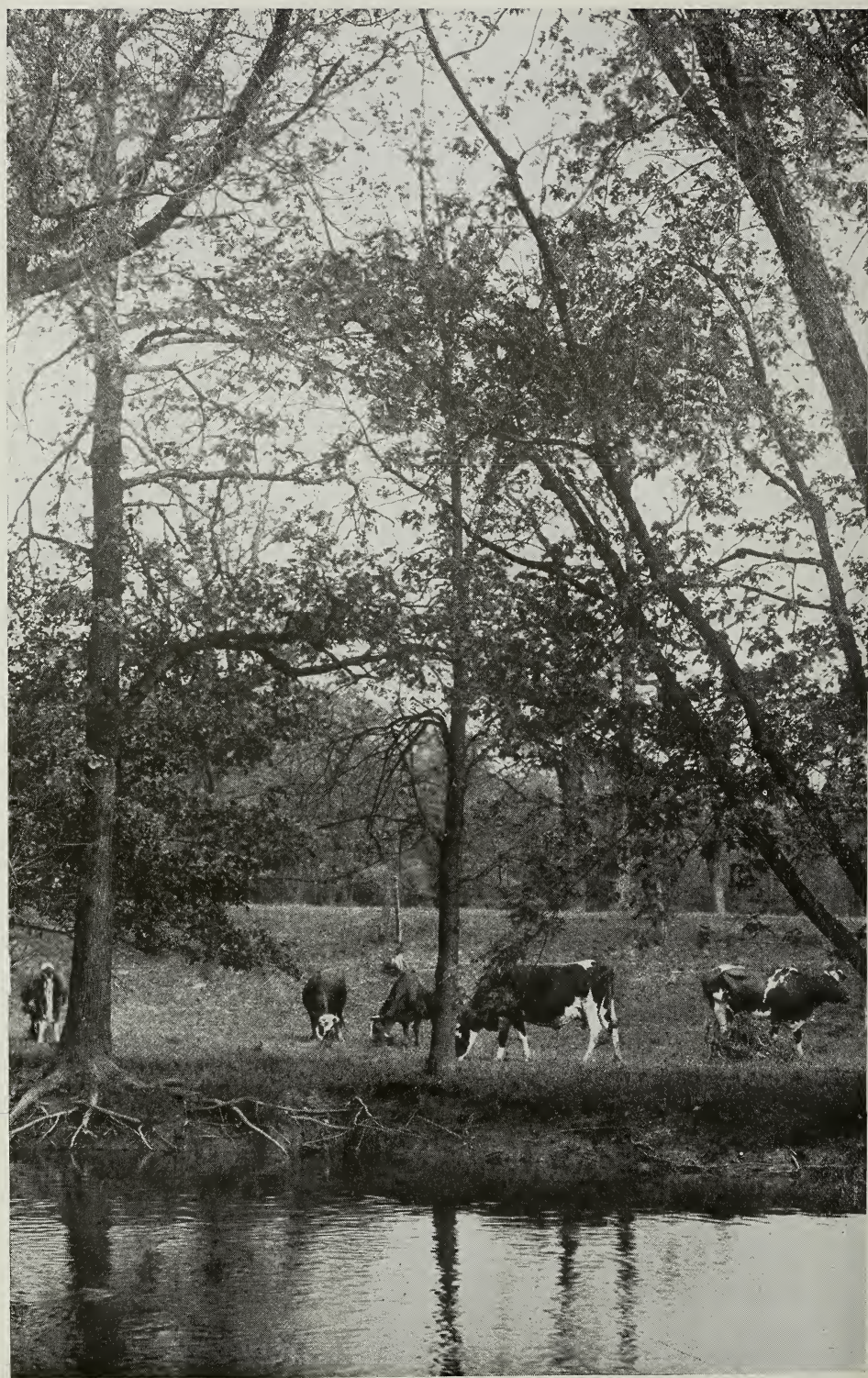


TABLE OF CONTENTS



	Page
APPEALING TO THE RURAL PEOPLE— L. O. Lantis.....	325
PRIDE GOETH BEFORE A FALL— Ruth S. Busby.....	327
HE KONWS SHEEP— C. F. Moses.....	330
ECOLOGY IN THE SERVICE OF AGRONOMY— A. E. Waller.....	331
THE FARM HOME GARDEN— L. M. Montgomery.....	334
EDITORIAL	338
ALUMNI NOTES	341
NEWS NOTES	342



The Agricultural Student

VOL. XXVI

OHIO STATE UNIVERSITY, COLUMBUS, OHIO, APRIL, 1920

No. 7

APPEALING TO RURAL PEOPLE

By L. O. LANTIS, Professor of Rural Economics, O. S. U.

(Prof Lantis, who has charge of rural community development and organization here at the Ag. College, tells in an interesting way how the leader of rural communities may make good and intelligent talks before the people and how to present good articles for publication.)

THE demand for leaders in rural communities is greater, today, than it has ever been before. There is no scarcity of latent leadership, but in many places the great problem is to develop active leadership. The thing the leader will have to do is to master the art of appeal. The spoken word, the written word, and the pictured idea are the three means of making an effective appeal to the public.

County agricultural agents, home demonstration agents, leaders of boys' and girls' clubs and other leaders in rural communities will probably find it necessary to use all three means of making public appeals. Perhaps all these means may be used in connection with the work on one project. The purpose of using any or all of them is to persuade people to do the thing that is described to them.

Speaking is not as difficult an art as it is often thought to be. Public tastes along this line have changed greatly during the last three decades. The grandiloquence of the Civil War period is a thing of the past. Very much of the speaking, today, is done at lunches or suppers and the time of the speaker is limited. Whatever is said must be compressed within the time limits. The "orator" who usually consumes fifteen minutes in a wordy introduction finds that he must get to his message during the first few minutes or

he will not complete his speech before his time has expired.

A speech must be shaped to fit the audience if it is to be effective. It is always an advantage therefore for the speaker to know something about the people who will be present when he speaks. Have they been thinking about the subject that will be discussed? Has it been presented to them by another speaker? Have they expressed an opinion on the subject? The answers to these and other similar questions will be a great help to a speaker.

The first requisite of speech-making is to have something to say. This does not mean something that may be said; it means something that must be said—"that presses on the mind uncomfortably until uttered." There are always many reasons for not making a speech and unless a speaker has a real desire to make it, the thing will not be done. An earnest purpose will create and intensify this desire.

Very often speeches are a failure because the speaker did not make careful preparation. If a man consents to make a speech he should plan his talk very carefully. It is always advisable for young speakers or those without much experience to prepare a complete outline which will be followed when the address is delivered. It is a splendid plan to write the entire speech, because this will insure better preparation. The

speaker will not commit it as it is written, but writing will help to fix the main points in mind.

Always speak in a natural key, and in a conversational manner. Many a speaker has risen with the intention to speak naturally, and has been carried away into a false manner before he has fairly started. After the beginning it is not so hard to go on. If a speaker can only carry into his public speech that conversational flavor of his private talk, the battle is won. Rev. E. E. Hale, who was a man of great fertility in public speech has made a good suggestion. He said it is advisable for a speaker to express to his neighbor conversationally the thought with which he means to begin his speech. Then when the speaker rises to speak he will say, "I was just saying to the gentleman who sits beside me, that"—and then he will repeat his remark over again. In this way the conversational manner will be secured.

Some persons advise speakers to "never carry a scrap of paper before an audience." If the address is read, of course the speaker will have his manuscript. However this is not advisable when speaking to an audience of rural people on a subject of general interest. It is a good plan to have some notes or an outline written on small cards. These cards may be held in the hand and they can be used when there is danger of losing the thread of the discourse or some valuable fact or illustration can not be recalled when wanted.

A series of a few points, as simple and orderly as possible, should be planned. They should be so arranged that each one will suggest the next and thus the memory will not be greatly taxed. Sometimes it is possible to fix it in the mind by having a leading word that will suggest each fact. The speak-

er wants to concentrate his attention on the thoughts he is presenting and not on remembering his outline.

The speaker will find that points alone are not enough. He must hold his audience. This must be done by "giving that audience a variety of food, and reaching their minds by facts, fancy and wit, as well as logic." Therefore it is advisable to plan for one good fact and one good illustration under each head of speech. A successful speaker will know more than facts; he must know reasons why and how to make those reasons human. Mr. Lucius E. Wilson, author of "Community Leadership" says, "Facts are said to be stubborn things, but certainly they are indigestible. Community indigestion is a more common disease than it ordinarily supposed."

Many speakers find it a great help to have a loose-leaf note book into which they put the best anecdotes, inspirational poetry, "telling quotations and well-turned phrases." Some persons prefer cards for this purpose rather than a note-book. This material may be taken from prose or poetry, newspapers or magazines, Shakespeare or Mark Twain. The point to be noticed is whether it hits the mark when it is used by the speaker.

The ability to write good letters and interesting articles for the newspapers is very important for the rural leader. The purpose in such writing is to persuade those to whom it is directed. It will be necessary for the leader to read some late books on Sociology, one or more good magazines, and, at least, one of the great national weeklies. Such reading will give him a wealth of vocabulary and illustrations that will enable him to write in a much more interesting

(Continued on page 356)

"PRIDE GOETH BEFORE A FALL"

By RUTH S. BUSBY, '21.

(The Ag. Student a few weeks past offered three prizes of \$15, \$10 and \$5 for the three best stories on some phase of Country Life. The following story is the one that headed the list. The second and third prize stories will appear in later issues.)

FARMER JOSHUA SKEELER'S broad one hundred and ninety acres lay across the road opposite the fertile one hundred and ninety-five acre farm of Silas Beckum. For years, these two exemplary tillers of the soil had been neighbors and friends, although, at times, in their past history, the hasty and uncontrolled temper of each had displayed itself in tempestuous words and stormy scenes, which invariably resulted in a long, sullen silence on the part of each. However, peace having once been made, a warmer friendship than ever was usually renewed. But in the last year, they had seemed to be growing apart once more and this time the prospect of a reconciliation seemed to grow dimmer, day by day.

Both had been successful farmers in an old-fashioned way but it was late before the modern scientific farming permeated either of their lives. Even then, it was only absorbed by John Skeeler while Si Beckum, the unfortunate possessor of a mind which seemed too narrow to advance with the age, refused to consider, in a scientific way, the science of agriculture, handed down to him by his father, and his grandfather before him, and all his forefathers of the ancestral tree.

He viewed with scorn the tall circular building, standing beside his neighbor's barn despite the fact that the latter's cattle, silage-fed, were almost twice as heavy as his own. He was dismayed at the cost of corn-husking and fodder-cutting machines, while annually he lamented the high wages paid out to men, hired to do these very things. He

ridiculed the cement floor placed under his neighbor's barn while his own stock stood often with sore feet in the filth. He scoffed at the Farmers' Institutes yet while Josh Skeeler attended these, he brooded at home over his neighbor's increasing prosperity and his own financial decrease. He looked on contemptuously, as Skeeler's house was piped with water while his own wife and daughters toiled daily in the drudge of pumping and carrying water..

This resentment at last blazed forth in the crowning purchase of his neighbor, a six-cylinder automobile. Unable to restrain themselves longer at the sight of their playmates' joys and pleasures, Beckum's children begged him to buy one—but only once. They were so terrified by his violent refusal that they never again dared to approach the subject in his presence.

Beckum in the meantime, had been negotiating with a horse dealer and one evening led home a beautiful horse, worth almost half the price of Skeeler's machine. The dealer had been crafty but Si prided himself on being shrewd, so the bargain was made and Si became the owner of the finely developed, high spirited animal. It's coat was shining black, its mane long and wavy, its every movement quick but graceful.

One day as Si led him out into the barnyard, Josh crossed the road to the front gate and called:

"That's a fine looking horse you have there, Si."

"He's not for sale," returned the other shortly.

"Oh, I wouldn't want to buy him,"

laughed Josh. "I've got something that can beat a horse all hollow."

"May—beee, may—beee, you think so, but it's got to be proved to me," retorted Si, his face red with his rising anger.

"Why, man alive," ejaculated Josh. "It don't need—"

"Don't you dare 'why man alive me,' Josh Skeeler," cried Si, coming closer. "I'm just as 'alive' as you are, and I'll show you, too, if you keep stickin' your meddling nose into my bizness. I'm runnin' my affairs as I always did, and I'll thank nobody for showin' me any better. This 'ere horse is just as good as that horseless wagon of yours and I'd stake my crops on him every time."

"Well, Si," said Josh, becoming provoked in spite of himself. "You ain't got as much sense as I've always credited you with. And as for meddlin', I figger it's about time someone woke you up with a god hard jolt—you're sure needin' it bad."

"I'll not take such words from any man, least of all you, Josh Skeeler," raged Si. "If you warn't such a coward, I'd be ready to fight you any day."

"Well, I won't fight," answered the other. "I've got too much civilization for that, but I'd like to show you that that car of mine is ten times more efficient than that black beauty standin' there."

"Show me, show me!" cried his antagonist. "There ain't a word of it true."

"Well, anybody with any gumption could see it any day," returned Josh. "But if you need such right-down-to-fact-proof, I'm ready to show you."

"Are you going to Hepzibah Peeling's wedding tomorrow?"

Si nodded assent.

"Well," continued Josh, "that's

eighteen miles from here. I'll give you an hour's start with your horse and I'll guarantee to pass you half way with my while family, while you can take only one, and when we get there we won't be tired, nor hot and dusty, and we could go fifty miles further without knowin' it. I'd like to see a horse that could do that."

"Is that so, is that so," sputtered his neighbor. "I'll take you up on that." And he went back to the barn.

Josh recrossed the road chuckling to himself, "I'll make that old fool eat the dust tomorrow. Of all the goose-headed stubbornness, I ever did see!"

The next morning the sun rose clear and red above the curling mist of the horizon. At an early hour in the Beckum barn, the black horse was being rubbed and curried, while in the Skeeler's garage the six cylinders were undergoing a thorough investigation and oiling.

At last the hour arrived for the first participant in the race to start. Bidding the rest of the family good-bye, Si and his son Jerry climbed into the rubber-tired buggy to which the proud-headed horse was hitched and trotted swiftly off down the road.

"Si'll half kill that poor critter," murmured Josh, as he watched their abrupt departure.

Exactly an hour later, Farmer Skeeler pressed the ignition button, the motor began to purr, and at the release of the clutch, the large machine glided smoothly out the driveway. A few moments later nothing could be seen but a trail of thick dust down the straight road.

Three miles from the adjoining farms lay Brownsville, a town of fifteen thousand inhabitants. The competitors had to pass through this as the

bridal-wreathed home of Miss Peeler was fifteen miles beyond.

Two miles and a half soon sped by and then, by the side of the dusty road, there came to the view of the automobile party a laughable sight. Si Beckum's boasted horse stood still as a Sphinx, his forefeet planted firmly in the sand, his head held high, his nostrils quivering, while an indomitable will shone from his flashing eyes. The black beauty had balked and had been balking for the last forty-five minutes, despite every effort and expostulation on the part of Si and Jerry to move him. Si's face was lurid with rage, his patience and self-control gone completely. Not only did he realize that he had been "duped" by the horse dealer but he saw already the victory of his rival.

Josh slowed down as he passed by and shouted, "Need any help, neighbor?" then sped on.

Completely overcome with wrath, Si shook his fist at the retreating car, but the thick dust filled his open mouth and choked back the ugly names he hurled after his old time neighbor.

Then suddenly seeming victory was snatched from the exulting Skeelers.

At the foot of a small hill a quarter of a mile from town, the cylinders began to miss, the car slowed down and finally the engine emitted one gasping gurgle and was still. Consternation shadowing his face, Josh sprang out of the machine, his family following.

They measured the gasoline, they tested the batteries, they examined the carburetor but to no avail. Here was another unconquerable spirit, equally as stubborn as the creature of flesh a short distance behind them.

Suddenly they all turned to look back up the road by which they had come. At first only a dense cloud of dust was

visible from which finally emerged a sight-compelling trio.

Si and Jerry and the horse were coming at full gallop, Jerry, with his feet braced against the dashboard of the runabout clutched the reins with the straining arm and taut muscles of a drowning person, while Si, an imposing figure of fury stood upright, swaying with the motion of the buggy, lashing the horse with a long strap every few steps it took.

Down the road, they thundered and past the Skeeler family, Si never seeing them so intent was he upon his vindictive occupation.

Although Josh laughed until the tears traced little furrows through the dust on his cheeks, he grew more and more irritated with his machine.

"Well, I swan!" he ejaculated glumly. "They'll beat us yet."

But in a few minutes, by one of those mysterious reversions of inactivity known only within the intricate realms of the spark plugs and various important valves, the powerful engine ventured several hesitating revolutions, gained confidence and soon hummed away its harmonic scale of sixty-fourths as limpidly as if there had been no break in its song.

"I won't let that old fellow have the laugh on me, if I have to drive like the wind," vowed Josh as they started on.

He kept his word and heedless of strict speed regulations, entered Brownsville, the speedometer wavering between thirty-five and forty. But unfortunately, for once the traffic policeman was watching for ordinance violators and as the Skeelers rushed through the down-town street, they were confronted by this officer, arrested, for speeding and taken to the mayor's office. Humiliated and chagrined, Josh

(Continued on page 360)

HE KNOWS SHEEP

By C. F. MOSES, '22.

(How many know "Billy the Shepherd" who cares for the University flock of sheep? Below you will find a short discourse on this man and his experience.)

SOME day when you want to spend a pleasant and profitable hour, turn west on the road passing south of the Horticulture Building and go on past the greenhouses, and the farmhouse, and the barn, and on till you come to the sheep barn. There, working with his flock, you will find W. J. Franklin, who is a perfect specimen of a sturdy English shepherd. His life is rich in

Highland, Galloway, and Aberdeen Angus cattle, and Tamworth hogs. During his stay with Stevens about seven hundred sheep were exported to the United States annually, besides some to Germany and the Argentine.

He sailed from Liverpool April 2, 1910, with sheep for the exposition at Buenos Ayers, Argentine, where he arrived May 1st. In the lot were



"BILLY" AND HIS BEST WETHER

experience, and he can talk interestingly of his work and observations on three continents.

Thirty-five years ago Franklin was born at Upton Scuddmore, Wiltshire, England. He has always worked with sheep. He was with H. C. Stevens of Cholderton, Salisbury, Wiltshire, during his last seven and a half years in England. When he left, there were about five thousand head of registered sheep on this five-thousand acre estate. Besides Hampshire sheep there were Cleveland bay and Suffolk horses, and

Stevens' Hampshires, Smith's Lincolns, Treadwell's Oxfords, and some Shropshires from Scotland.

While at the Exposition he saw local sheep, cattle and horses of merit. The sheep and cattle of the Argentine seemed in fully as good condition as the English stock, being fed largely on alfalfa hay. He left the Argentine July 8th and arrived in London August 4th.

He sailed for America March 15, 1911. From the time of his arrival in America until March, 1913, he was engaged in fitting and showing the Hamp-

shires of the famous Walnut Hall Farms, Donerail, Kentucky. This was in the heart of the bluegrass region, being only a few miles out of Lexington.

In 1913 he came to Lucas, Richland county, Ohio, where he had the care of Mitchel's Hampshires and Southdowns. While here he imported a Hampshire ram, bred by Stevens, which won the championship at the Ohio State Fair in 1914.

In March, 1915, he took up his present work at the University. During the time he has been here he has seen the flock increase from about eighty head to about one hundred and twenty head at present. The flock now consists of Southdowns, Shropshires, some Merinos. There are also a few grades from a cross of a Southdown ram on the Merino which show promise of developing into something worth while. The flock has increased in quality due to the culling out of mediocre animals.

Mr. Franklin has sound and interesting ideas on his work. He is a firm believer in the outstanding importance of

constitution. One should never select an animal because of any refinement or adaptation, no matter how desirable, if constitution has been sacrificed. He will tell you that the plowing of pastures and the use of rape and oats, so that the sheep do not remain on old pastures all the time is a better preventive of parasites than is medicine. His success with sheep is due to constant and careful study of what the animal needs for normal, natural development, and a conscientious attempt to supply these needs.

The best practices of English sheep husbandry have been adapted to American conditions and combined with the best American methods by Mr. Franklin in the practice of his art. A talk with this practical, keen sheep man will be well worth the time of anyone interested in the best practices of sheep raising. Not only is he a skilled shepherd, but he is also a well informed and interesting talker, and a man well worth knowing.

ECOLOGY IN THE SERVICE OF AGRONOMY

By A. E. WALLER, Professor of Botany, O. S. U.

(A different view of Botany as the average student views that science. Here is presented something worth while from the above standpoint.)

THE most fundamental effect of the war on the agricultural sciences in America is the new spirit of cooperation developing among the workers. This is reflected in the many excellent editorials appearing during the last year in the "Experiment Station Record," in the various journals in many scientific articles, but it is not noticeable at meetings of scientific societies. At these gatherings one comes to believe that the cooperative endeavors among scientists so frequently talked about is at last a reality and that Science is undertaking to make herself efficient as

well as continue to systematize her problems. By no means the least in importance to agriculturists is the successful launching of "Botanical Abstracts," in itself a monument to the patience and willing cooperation of many hundreds of workers.

The whole movement toward mutual helpfulness rests on a slight change in point of view. We are not merely trying to see Nature clearly, but we are trying to see some of our problems whole. A living organism, no matter how primitive structurally may offer a complicated series of physiological

problems which in the present crude state of knowledge have not yet been touched. The various activities of simple organisms, say a single celled alga like proto-coccus, is only fitted to carry on the business of life because the various single processes or enterprises, for instance, absorption of water and inorganic raw materials, food syntheses, respiration and so on are combined under one interlocking directorate. We are not able to see how this kind of organism is successful until we see, not only, the inner processes, but its migration, distribution, periods of activity and dormancy and so on and relate these to external conditions. In other words, we begin to see that we must take up the study of the whole organism. How has our training as students fitted us for such fundamental problems?

In all the biological sciences the mode of treatment is to deal as exhaustively as possible with the subject of study. This contrasts with the study method of the more exact sciences which treat elements in terms of abstract principles.

From the beginning we have been shown that the successful scientist is not the one who attempts to dissipate his energies over the whole vast field open to research but confines himself to certain definite problems which his natural aptitude and training fit him to attack. Are we then to leave this mode of extending the boundaries of human knowledge? Should we quit the callings of our election and all try to become expert in chemistry, physics, biology, geology, astronomy and mathematics and what not else at once? Certainly the span of human life checks such vain ambitions even if the absurdity of the proposition of our attempt ing to be tyros in many fields does not.

A specialist finds his own field too large, usually, after one or two preliminary surveys of it. How then are we to arrive at the solution of seeing our problems whole and clearly?

The only answer to this question at present seems to be that of cooperation projects. We cannot give up being specialists but we must see where our problems touch upon another field and show the unification of related lines of research will focus enough light to reveal the answer to baffling problems. It is the purpose of this brief paper to show how ecology, the study of living organisms in relation to their habitats, can aid the agronomers. We must not only know that a division of labor makes for efficiency but that there is strength in union.

It is the common experience of students in the agricultural schools of our country to feel that when they are studying soil chemistry the chemical constituents are the all-important fundamentals of crop production. If they later take up soil physics as a separate study as many do, the texture of the soil, the size and arrangement of its particles becomes the *sine qua non* of productivity. After that comes bacteriology and the soil seems now so packed with micro-organisms as to leave no room for minerals, humus or water. So the story goes; with each new subject there comes a new orientation. The enthusiasm of the instructor for his own special field is often so great that the students fail to grasp the point that the production of the green plant—the primary synthesizer of all food, is the central idea of agricultural endeavors. We may call ourselves agronomists, horticulturists, pathologists, soil chemists or physicists, or any other name. We are all in part *botanists* and our interest con-

verge in the problems of nutrition, growth, and reproduction of the green plant. For some time to come the world's most important chemical reaction will be that of the union of carbon-dioxide and water to form sugar. Since this is the basis of all our material culture, viz., our food, our fuel, our lumber, our fabrics and fibers, our gums, rubber, resins, oils, fats, many drugs and chemicals, etc., it is worth our undivided attention. It is the ecologically-minded man who sees, not only the green plant which yields him a dividend in its products, but who also sees the aerial and the soil environment of the plant. Such a person would have visualized the air as a reservoir of carbon, oxygen and nitrogen and would perceive in its varying temperature, moisture, and light conditions, the major factors which control plant distribution. The soil would not be just so much mud, but the water, the pulverized rock containing the minerals needed for plant growth, the humus, the air circulation and the micro-organisms would all pass in mental parade thru his thoughts.

The present day and future botanist, if he is going to fulfill the trust imposed upon him by his fellow workers, must be more at home abroad. He has carried his laboratory studies up to the point where he is about ready to make applications of his science in the field. It is quite impossible to bring the field into the laboratory. If an astronomer wishes to chart the stars for the Southern hemisphere he must go to the Southern hemisphere where they are visible. Just so must the philosophical experimenter with plants go out to where he can see the objects of his study. Forestry has some time since taken up the ecological consideration of its practical problems and Soils and Farm Crops are

quite as ready to see that ecological applications are not limited to forestry.

The British government having taken Palestine by the sword is preparing to restore it by the plow. Situated at the crossroads of the Old World, Palestine is of tremendous potential wealth could it but be made to support its population according to modern standards. To render it profitable, is the task set for the botanists who are in the employ of the government and conducting a primary survey. It will rest upon their discretion to set aside lands for permanent forests, lands which need drainage to free them from malaria, lands which need irrigation and lands now readily arable. They will augment the native vegetation and reinforce the cultivated plants by drawing upon their ecological equivalents from all over the world. Part of the plan includes the importation of eucalyptus to help drain the malarial districts. This is a work worthy of the world's best talent and requiring the cooperation of botanists, zoologists and engineers. To conduct a primary survey of this nature they must all be ecologically-minded—that is capable of seeing all outdoors as a biological laboratory.

That our English cousins are making progress in applying ecological methods is practical plant production in several parts of the world seems pretty clear. In South Africa, Professor J. W. Bews of Pietermaritzburg, has been carrying on classical researches with the grasses. Useful as a "hortus siccus" is to the systematists, it does not offer a very satisfactory study for the agronomer. The title of Dr. Bews's recent book, "The Grasses and Grasslands of South Africa" is suggestive of the nature of the study which this distinguished ecologist has made. South Africa has over five hundred spe-

cies of grasses and it is from the native types that the forage crops of that country will have to be developed, since the imported grasses are not suited to the climatic and soil conditions. This practical conclusion takes weight from the field experience of more than fifteen years duration of the author.

In New Zealand, also, Dr. Cockayne's work is on an equally high plane. In a recent address on the importance of plant ecology to agriculture he asserts that "the yield of meat or butter fat per acre is primarily a matter of the plant-covering of the farm." Again, that "the ecology of virgin land is, then, the ecology of the farm, except that on the latter, man can purposely alter the conditions to which plants are subject in order to increase their economic efficiency." His final conclusion is that "agriculture is neither more or less than applied plant and animal ecol-

ogy." That this is in accord with the present writer's view will be seen by referring to the paper entitled "Crop Centers of the United States," in the files of the American Journal of Agronomy. Excellent reviews of the British papers are to be seen in the May, 1919, number of the (British) Journal of Ecology. Attention is also drawn to the fact that in America we are by no means without primary surveys along ecological lines. In Illinois Dr. H. C. Cowles is conducting the Illinois forestry survey, destined to show which lands in that state should be permanent forest preserves and which are available for cultivation.

To many accustomed to regard all of Illinois as a corn field this undertaking may come as a surprise. This only emphasizes the more strongly our unfortunate American habit of trying to

(Continued on page 362)

THE FARM HOME GARDEN

By L. M. MONTGOMERY, Professor of Vegetable Gardening, O. S. U.

(We all know how good it is to look on a well planned and well cared for garden. It is a real pleasure to go by a good garden. In this article you will find how you yourself can possess one.)

IN these days of high costs and scanty world food supplies, the need for an increased interest in vegetable production both commercial and amateur is of paramount importance.

The need of production and conservation was never so great in recent history as it is today—the year 1920. Yet in spite of this urgent need, the tendency is toward restricted rather than increased production, because the tiller of the soil being forced by the constantly soaring prices of labor and the attendant scarcity of farm help to restrict his plantings to that area which can be cared for without employed help.

Intensive rather than extensive ag-

riculture is in the ascendancy, which fact emphasizes the importance of vegetable culture as a means of most rapidly increasing our food supplies.

Without question one of the most valuable areas of soil on any farm as regards food production is that devoted to the home vegetable garden.

It is valuable because it is the source of healthful and palatable food products of prime quality. Its production is conducive to a larger consumption of vegetable not only because they are easily accessible, but because being fresh they are much more acceptable as an article of diet. It is valuable further because it materially reduces the drain upon the family purse in relieving the

demand for the more concentrated and expensive foods.

The success of the home garden depends upon three principal factors—how it is planned, what the soil conditions are, and how well we care for it.

Planning the Garden.

A definite plan for the garden is as essential to its success as is the case with any other business enterprise. The planning of a garden consists in the advance determination of the amount of space we can or need to devote, to vegetable crops, the kind of crops to be grown, the proportions of each, how they shall be arranged, what successions can be provided, the variety and amount of seed required, the most suitable planting distances, how the plants are to be fertilized and what the cultural practices are going to be, including watering and protection against the various pests which will seek to destroy the fruits of our efforts.

The area given over to the farm garden should range from one-fourth to one-half acre. If of one-half acre size, it may well include all the sweet corn, potatoes and other extensive crops required by the household. If smaller, the potatoes, especially, need to be planted elsewhere. But in no case should area devoted to the garden be larger than time will admit of properly caring for or than is needed in average seasons to furnish the table with fresh vegetables and such amounts as may be needed for canning or other means of preservation for winter use.

First we are to consider the perennial crops such as asparagus, rhubarb, horseradish and winter onions. All of these will be desired in greater or less quantity by almost every farm home. The proportion of each depends upon the number of people to be supplied.

Fifty to seventy-five hills of aspara-

gus, two dozen hills of rhubarb, a half dozen of horseradish and twenty-five foot row of winter onions will furnish an ample supply of all these materials for the average size family.

All perennial crops should be grouped together at one side of the garden area where they will not interfere with the preparation for and the culture of the annual crops.

The annual vegetables should also be grouped according to their planting season beginning at one side of the plot with early potatoes and following with parsnips and salisfy or vegetable oysters, onion seed or sets, lettuce, radishes, spinach, peas, beets, and carrots. A little later we will follow these frost hardy crops by those which are frost tender in the order of their planting, such as green beans, sweet corn, tomatoes, peppers, eggplants, lima beans, the vine crops and finally more sweet corn and late potatoes. Then still later as the earlier crops have matured and been utilized, the soil may be prepared and plantings of other short season crops made. For example, the early potatoes may be followed by sweet corn, green beans or turnips, the onion sets by celery, and the peas by late cabbage. Every effort should be made to have the ground occupied by a growing crop from early spring till the time of killing frosts in autumn, not only for the sake of the materials produced in variety, but because it will aid in keeping the garden free from weeds and otherwise attractive.

The planting distances, in the case of the large crops, should be such as to admit of horse cultivation, but for the small crops such as lettuce, onions and the roots, the spacing of rows may be reduced to a minimum of 12 inches and allow for cultivation by means of the small hand wheel cultivators.

The several varieties wanted and the amount of seed required should be determined as closely as possible and the seed ordered so as to have it at hand at planting time so that there may be no delay in getting the work under way.

Some Worthwhile Vegetables.

Besides the standard vegetable already mentioned, there are several others well worth while in the farm garden. First among these may be mentioned the Swiss chard and celery family not producing an enlarged fleshy root. As a pot herb, this vegetable is one of the most valuable because of its hardy, vigorous character and luxuriant growth. It may be grown from seed sown in the early spring and allowed to occupy the ground for the entire season and its outer leaves removed from time to time for use as greens or it may be pulled as soon as large enough for use and a succession provided for by repeated sowings. The large fleshy leaf stocks are desirable, when cubed, for salads and they may be creamed similarly to asparagus.

Another valuable vegetable for a summer greens is the New Zealand spinach. This is a wide spreading succulent cut-and-come-again kind of plant which thrives in hot weather is kept well supplied with water. The tips of its trailing branches may be pinched off time without number and new shoots arise to continue its growth.

As an autumn salad crop, endive is a most valuable vegetable, little known in the farm garden. Seed sown the middle of July will make a splendid growth before frost. The habit of growth is somewhat like lettuce, but more spreading and the leaves are more or less finely divided. When blanched by drawing the leaves together and tying at the tips, a most delightful salad material is produced.

Witloof chicory is another late growing salad vegetable worthy of trial for winter forcing. The seed sown the latter part of June will produce very satisfactory fleshy root growth before freezing weather. The roots are harvested in late autumn and stored in a cool place and when salad material is wanted, they may be buried in a moist loamy soil to a depth of six to eight inches in a warm cellar. Shortly there will be produced a strong growth of compact blanched leaves which are highly prized for salad purposes.

There are numerous other old but little grown vegetable which are worthwhile in any farm garden, but the lack of space forbids a further discussion of them.

The Preparation of the Soil.

A well enriched, well drained and thoroughly prepared soil of good texture is fundamental to the successful production of a vegetable garden.

While loam soils are generally preferable, good gardens may be produced on heavier soils if proper care is given in the preparation of the seed bed and subsequent cultivation. Where manure is plentiful, it should be used liberally on soils, for the sake of the organic as well as the plant food carried. Twenty-five or more tons per acre annually is justifiable for such time, at any rate, as is needed to bring the soil into a fine mellow condition. There is nothing that can fill the place of manure in vegetable production, but its growing scarcity even on our general farms is such as to necessitate its economical use. Beyond the amount needed to maintain the organic matter in the soil, manure must give way to commercial fertilizers in their several forms.

Vegetables vary greatly in their fertilizer requirements, but all of them require large amounts of readily availa-

ble plant food. As a basis of fertility for all garden soils, acid phosphate or phosphate rock should be liberally used to supplement the manure. The use of complete fertilizers rich in nitrogen is not advisable, but separate applications of nitrate of soda or sulfate of ammonia will be found valuable for cabbage, celery or other leafy crops. Phosphorus is needed for potatoes, sweet corn, tomatoes, peppers, eggplant, and all the vine crops, while potash is valuable for potatoes and the roots such as parsnips, beets and carrots. A complete fertilizer running about 2-12-2 applied at the rate of 600-800 pounds per acre broadcast at the time the soil is being prepared will provide the general food requirements for all vegetable crops, but supplemental special applications of nitrogen, or phosphorus at the time the plants are set or after they have become established will be a profitable practice.

Strictly fresh stable manure should not be plowed under in large amounts immediately in advance of the planting season, particularly in those areas devoted to the root crop, potatoes, or tomatoes. The excess of nitrogen will be injurious in such cases.

Garden Tools.

If the garden is to be successfully and most easily cared for, certain hand wheel tools are desirable. The question of whether a seed drill is advisable or not depends upon the area to be planted. In the main, it may be regarded as profitable in any farm garden to utilize a vegetable seed drill, because of the ease and the speed with which the work may be accomplished. Besides the drill will sow more evenly and place the seed at a more uniform depth and in contact with moister soil than is possible in most cases by hand methods. The use of hand wheel cultivators is especially

to be advised because of the labor saving and time saving qualities. Even in the case of fair sized gardens, the work of cultivation may be accomplished by means of the hand wheel tools with almost as little fatigue and expenditure of time as will result from the use of horse tools.

In certain cases, the purchase of combined drills and cultivators is advisable, but an extensive variety of attachments is unnecessary.

Cultivation.

The second most important thing concerning the soil is that of cultivation. Over-cultivation is practically impossible if carefully done. Early cultivations should be shallow. Later deep cultivations may be necessary to loosen a packed soil, but in no case should the cultivations be deep after the roots have spread throughout the soil. Shallow level cultivations later in the season of maturity is essential to conserve moisture, but the root systems of the plants should be as little disturbed as possible. Cultivation of any crop should continue as long as possible and at frequent intervals.

Watering.

An ample moisture supply is more essential for vegetables than for general farm crops, and because of this requirement, it will be profitable to adopt the practice of irrigation now so common among the commercial vegetable growers. Watering by means of a hose, while effective, requires a large amount of time, and regular sprinkling equipment, such as the Skinner overhead system is to be highly recommended, especially where there is already an adequate pumping plant on the farm. This system consists of parallel lines of one inch galvanized pipe

(Continued on page 364)



OF
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WHY NOT A COURSE IN AG. JOURNALISM ?

There is a very urgent need for a course in Agricultural Journalism in the Agricultural College. How often we hear this statement: I would like to write but I never was any good along such lines. It is true in many cases that we are trained for a certain definite work and after all the training we are unable to put it upon paper so the other fellow will have the benefit of our experience. There are hundreds of people out in agricultural work who have had experiences that would be of great value to many of us but are unable to express themselves on paper and so one must have an interview in order to let the readers of his paper or journal know about it. This is true for any one can discover for themselves if they try to get certain individuals to write along their experience. As we go out from college we soon fall in with the

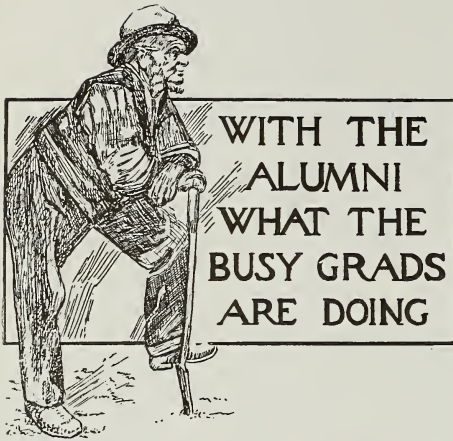
above class unless we have had a little training and feel as though we can put up something worth while. So we need and want a course here at State.

Several years ago when Mr. Clarence Baker was offering such a course it was very popular with the students of Agriculture. Many of the articles and stories turned in for class work were printed by the various agricultural journals. Students were interested but Mr. Baker resigned and went to edit the publications at the Ohio Experiment Station. The war then came along and no one was hired to fill his position. So now we have no course in agricultural journalism. Some say take regular journalism and work on the Ohio State Lantern but we Ags. want to write along different lines than do city or college newspapers. We don't want to say the same thing over two or three times as city papers do in their headlines. We want to put something up in a straight interesting and instructional way to our readers. The Agricultural Student would serve as laboratory work for an Agricultural Journalism course just as the Lantern does for the students taking journalism.

Many of the midwestern Agricultural Colleges have such a course as we have suggested and find it a valuable asset to their curriculum. So why can't we have one here at State. Let those who are in charge get busy and provide for an instructor in Agricultural Journalism. There has been a tendency in the past few years to sort of lay back in the breeching and let things slide. What we want to see is our own College of Agriculture up and doing and one of the best way to start is to get publicity so let us have a course next fall in *Agricultural Journalism*.

COULD YOU MAKE A GOOD SPEECH?

Many Seniors will graduate this June and we just wonder how many of them could make the necessary preparation for a good talk if called on to do so. Many will bump up against such a proposition and the audience will judge you by your performance. Now Mr. Senior you face the facts, what have you done so far to help yourself out of such a situation? Many have done very little. So we have asked Mr. Lantis, who does considerable speaking over the state, to write for you some of the things that he thinks you should do in order to make a good talk before rural people. Therefore we suggest that you turn over to his article and read it over.



R. L. Fromme, '05. has recently been appointed district forest inspector, National Forest Recreation and Game Protection. His headquarters will be at Olympia Washington, for the present.

Announcement is made of the marriage of Harold H. Vandervort, ex-'21, to Miss Gladys Smith, both of Wilmington, Ohio, on Thursday, February 19, 1920. After the ceremonies the bride and groom left for an extended visit in the South. They will be at home on his farm near Wilmington.

John Evkert, '16, is now located at the North Carolina Experiment Station, Raleigh, N. C. He is connected with the department of entomology.

C. K. Elliott, '11, has rented his farm near Plain City, Ohio, and is going into commercial work.

H. F. Coterman, '16, was in Columbus recently on his way home from a meeting of the Deans of the Education Colleges of the middle west, at Chicago. He is at present Dean of the College of Education at Maryland State by title, but is in reality concerned with several extension projects, which are being carried out by that institution, in addition to his regular work.

W. K. Kennedy, '18, has his head-

quarters in Cleveland where he is interested in the promotion of the sales of the stock of the Cleveland Credit and Loan Co.

D. W. Williams, '15, is professor of animal husbandry at Texas A. & M. He reports having organized a chapter of the Saddle and Sirloin Club there just recently.

F. C. Roth, '19, is in the department of pomology at Purdue University.

Wayne Patrick, '17, has turned over the entire management of their farm at Mechanicsburg, to his brother and is studying at Carnegie Tech, preparatory to entering the insurance business.

E. R. Hoftzyer, '14, is now advertising manager of the Winchester Arms Co. He is residing in Hartford, Conn.

G. M. Worman, '12, has sailed for Europe in the interests of the G. F. Taylor commission house in New York. He expects to visit France, England, and several other countries on the continent before returning.

C. F. Hyde, '08, is farming near Frankfort, Ohio.

H. R. Watts, '10, is connected with the department of entomology at the University of Tennessee.

O. P. Gossard, '15, is teaching agriculture in the New Bremen, Ohio, high school. He entertained the girls' glee club from Ohio State recently when they gave a concert at the New Bremen farmers institute. The girls all speak highly of the hospitality shown by Mr. and Mrs. Gossard.

D. C. Mote, '11, has been appointed Arizona state entomologist, and is located at Phoenix.

C. B. Durham, '12, has formed a new real estate company of which he is president. C. B. Durham & Co. will occupy offices at 760 Lemcke Annex, Indianapolis, Ind.

Home Economics Department

HOME ECONOMICS JOURNALISM

In reading the various periodical publications of the day, including the daily newspaper, one may be much impressed by the prevalence of the Women's Columns, the number of articles dealing with Home Economics, and the fact that entire magazines are devoted to the subject of Home-Making and related subjects. This type of literature may be termed Home Economics Journalism.

Trades have their trade-journals, business concerns of various sorts have their publications and even professional circles are bound together by a type of professional journalism, such as for instance, "The New York Medical Journal," and "The Ohio Teacher." These bulletins contain much of value to those whom they concern; records of progress, inventions, discoveries, methods and so on. Almost any line of work is better organized than the household because the household has remained small, conservative and isolated. Home Economics is a profession, although even more poorly organized and less efficient as yet, than any other profession. The isolation of the household might well be lessened by the existence of a type of journalism adequate for its needs. This would be a step toward better organization and a higher state of efficiency for the household.

The ideal of Home Economics is stated in a definition by Mrs. Ellen H. Richards, which has been accepted by the American Home Economics Association. "Home Economics has for its aim, the ideal home life of today, unhampered by traditions of the past; the

utilization of all resources of modern science to improve home life; the freedom of the home from the dominance of things, and their due subordination to ideals; that simplicity in material surroundings which will most free the spirit for the more important and permanent interests of the home and of society." Any journalism then, posing in the guise of Home Economics would be expected to fulfill the standards set by the definition.

Mary Leah Harkness says, "The perpetual declaration on the woman's page of modern periodicals, that every woman should know how to cook a meal, make her own clothes and feed a baby, fills me with scorn unutterable. But then for that matter the mere fact of a woman's page fills me with scorn. Why not a man's page with a miscellany of twaddle, labelled as exclusively adapted to the masculine intellect? The idea that literature is properly created male and female is no less absurd than the idea that there is one education of man and another of woman."

Is she justified in making this criticism? Perhaps! for in a column in a daily newspaper, headed "Home Economics" is contained a list of five or six "Favorite Recipes." Most assuredly this does not go far in the accomplishment of the aim of Home Economics. But just as surely as there is a vital need for the right kind, that need is being supplied by some very thoughtful writing. The real need is of thoughtful writing upon subjects which will really help the homemaker to free the home from the dominance of things and see them in their proper relation to ideals.



News Notes



'ROUND THE SOILS DEPT.

Mr. Guy Conrey, our soil survey expert, has had a very attractive offer to go to Indiana and take charge of the survey work soon to be started in that state. However, he has agreed to stay here working under a slightly different arrangement than heretofore. He will work in cooperation with the Wooster Experiment Station, being there two months of the year and remaining here the other ten.

An experiment on the Soils Department's fertility plots which will be of interest to vegetable gardeners as well as to others, is the one to determine the effect of different fertilizers applied in various forms and at different times upon garden crops. A four-year rotation will be followed growing the seven crops, tomatoes, peas and beets, early cabbage followed by beans, and early potatoes and sweet corn. Seed will be selected and an effort made to develop a strain of each. A comparison will be made between an application of sixteen tons of phosphated manure per rotation, and similar amounts of plant food applied in other forms. With horses in the city being largely displaced by the motor truck, market gardeners have found it difficult to secure the usual quantities of manure, so experiments to determine whether other forms of plant food can be substituted in part or entirely for manure are very timely.

Timely Soil Topics, presenting the best information that can be secured on the subjects, are still being prepared every month. The supply published of the March topic, No. 22, Acid Phosphate, by Prof. Bear, has already been exhausted. The next three Topics will

be April, Fertilizing the Garden, by L. M. Montgomery; May, The Corn-Soy Bean Combination, by M. A. Bachtell; and June, Rye and Vetch as a Winter Cover Crop, by Robert Dustman. A few copies for free distribution through the Extension Department are usually available. After August 1, the number available will be considerably increased. The Topics for the first twelve months have been published in book form and can be secured from the Soils Department for \$1 a copy. If the demand warrants it the later articles will probably be published also.

A letter recently received by Prof. Bear from Albert C. Workman, who took his Master Degree last June, tells of his work at Bethany College, W. Va. Besides teaching classes in Agricultural Chemistry and Soils, he has been in charge of the college farm of 550 acres. Sixty-three head of cattle, mostly pure bred Guernseys, are kept on the farm, and all of the work is done by student labor. The aid of a working superintendent is promised for the coming year.

There is an opening at this school for a man capable of assuming the duties of the Professor of Animal Husbandry.

—V. Clever.

Col. J. L. Cochrun has resigned as head of the federal-state crop bureau to go with the market research department of the Goodyear Tire and Rubber Company. W. T. Calandar, who had charge of the work while Col. Cochrun was in the army, will be his successor.

O. J. Shong, '17, is teaching in a Smith-Hughes school at Minerva.

Thomas B. Foster, '06, is county agent for Highland county.

FINDERNE PRIDE FAYNE

PREPOTENCY

"Having a preponderating power or influence."

The fact that Finderne Pride Fayne, himself a son of a world's champion long distance cow with over 28,000 lbs. milk in a year, has produced a four-year-old daughter with over 27,000 lbs. milk, proves to us most conclusively and should convince the most skeptical that he truly is

A Prepotent Sire

This is something that should influence you very largely in the selection of your herd bull and do not forget that Finderne Pride Fayne has a greater percentage of daughters in the 30-lb. class than has any of his noted ancestors which include such bulls as Hengerveld De Kol, Johanna Rue 3d's Lad, King Segis and King Fayne Segis. He is the direct result of three world champion cows having each been bred to a son of a world champion.

Meadow-Holm Farm

PETER SMALL
Chesterland, O.

H. B. GOODING
Tiffin, O.

TIPS IN SEASON.

State experiment station authorities are repeating their action of two years ago by warning farmers to test their seed corn. This is due to a wet fall after corn cutting, followed by the early coming of a severe and persistent winter.

An increase in the use of better farming methods is shown by the fact that ten Ohio farmers produced 1000 bushels of corn on ten acres in 1919 while only one farmer fell in this class two years ago.

The farmer is constantly facing the problem of increasing the wages of his farm help. The state market bureau reports that hired help on the farm received \$39.40 with board in 1919 against \$35.40 with board in 1918.

—H. W. Harshfield.

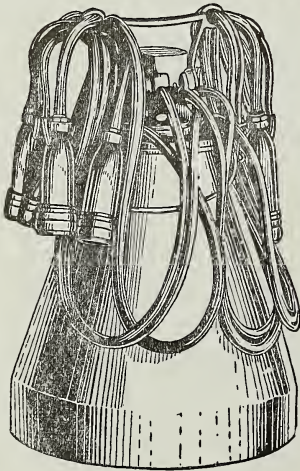
PROF. JOHNSON RESIGNS.

Professor E. F. Johnson, assistant

professor of agricultural education, has resigned his duties, effective April 15, to take charge of the Johnson estate near Stryker, Williams county. This move is made necessary by the recent death of a brother, Mr. E. S. Johnson, who has operated the farm for several years. This farm has developed a thriving business in growing and marketing soy beans both in cooperation with the U. S. D. A. and the Experiment Station, as well as original work by Mr. Johnson himself. Mr. Johnson's position in the department in connection with the training of teachers of vocational agriculture will probably not be filled before the first of July.

Messrs. M. E. Simon, R. E. Helt, G. A. Dustman, and M. V. Brady have received their initiation into the ranks of agricultural pedagogues by completing their five weeks of supervised teaching in the training schools. Mr. Helt and Mr. Dustman taught at Grove

When You Graduate and Begin Your Career As a Farmer



Resolve to cut your milk production cost, not only its dollar cost for labor, but that greater cost—in hours.

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SENATOR HARDING

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BELOVED AS WAS MCKINLEY



HARDING PLEADS FOR SQUARE DEAL

"We must pause to reflect that the American square deal, which is the essence of all just government, must apply to all American citizenship alike and is the due of righteous business without which we do not prosper: is the right of the American farmer, without whom we cannot subsist; is our pledge to the American workmen, whose good fortune is essential to both tranquility and continued advance. I do not believe the farmer's uncomplaining patriotism in war will be fittingly rewarded until he comes into closer and more influential council in seeking the highest good fortune of all the American People and must himself fully share the fruits of our achievement."

HARDING PLEADS FOR PRODUCTION.

"The world needs production. It needs work, more work, and still more work. But no man can ever be made to work against his will in free America, and the student of modern developments in industry who thinks to destroy unionism and collective bargaining little understands the new order.

"We ought to resolve to do every consistent thing to get away from abnormal conditions of war and seek the stable ways of peace.

"We ought to about face on war's extravagant expenditure, and get to thinking

in millions again, instead of incomprehensible billions. War-time burdens in the time of peace show scant consideration of uncomplaining patriotism, and high cost of government is the first cause of the high cost of living about which we all so earnestly complain."

BACK TO NORMAL

**FARMER BOY—PRINTER—PROFIT-SHARING EMPLOYER—
STATESMAN—RED-BLOODED AMERICAN**

For more than twenty years Senator Harding, as publisher of the Marion (Ohio) Star, has shared profits with his associates and employes. As a newspaper man he blazed the way and today, as a member of the highest legislative body on earth, he stands forth as a true and tried friend of the toiler—on farm or in workshop—and was a pioneer in profit-sharing and collective bargaining. His record, his deeds, speak for themselves.

THE WAR IS OVER—NOW FOR INDUSTRIAL PEACE

Senator Harding is not only a safe and sane statesman, but has proven a successful business man. He knows the problems of industry, labor and the farm, and their future would be safe-guarded in his hands. With Harding as president harmony and concord would again prevail between the executive and congress. With Ohio's distinguished senator in the White House the nation would, indeed, be "Back to Normal."

CONTRIBUTED BY A FRIEND.

City under the supervision of Professor Nisonger, Mr. Brady at Canal Winchester, under Professor Kauffman, and Mr. Simon at Worthington, under Professor Schreiber.

SIXTEEN SHORT-AGS GRADUATE

Graduation exercises for the seniors of the three-year agricultural course were held on the night of March 11 at Ohio Union in connection with a banquet held in their honor. This class was composed of sixteen members which is an increase of eleven over the class of 1919.

Following the banquet short addresses were given by members of the class and from the faculty. These talks included: "Beginning," by L. Poe Patrick, '20; "Working," by Prof. Harry C. Ramsower, director of Agricultural Extension; "Playing," by Prof. Lee O. Lantis, of the department of rural economics; "Living," by Presi-

dent W. O. Thompson, and "Finishing," by M. Ross Wright, '20.

Those who received their diplomas this year are: Millard C. Stacy, Walter H. Hazen, William C. Pifer, L. Poe Patrick, George W. Behymer, Ernest C. Chrestensen, Russell L. Elliott, William C. Fast, Jr., D. L. Foltz, M. Ross Wright, Warren C. Welbourne, Karl T. Washburn, Herbert H. Hooper, Lawrence H. Straub, Paul F. Hoskins, and Nicholas E. Palatainus.

PROF. D. D. HUGHES GONE

Mr. D. D. Hughes, Assistant Professor of Rural Economics, left March 15 to be gone until April 10. He will make an extended tour thru Putnam and Allen, and Trumbull and Portage counties, where a complete farm record on 100 farms, upon which tractors are used, will be recorded.

This record will cover a period one year prior and four years after the

FOR GOOD THINGS TO EAT

—GO TO—

MARZETTI'S RESTAURANTS

Where Only the Best is Served

TENTH AVE. AND HIGH ST.

Seating capacity of Table service 300
Separate Ladies' Dining Room

59 EAST GAY STREET

Seating capacity of
Table Service 125

**CHICKEN, STEAKS, CHOPS,
SPAGHETTI, RAVIOLI, POLPETTE, ETC.**

Special Dinners Lunches Plate Dinners



Does Cletrac Ability Measure Up?

THE Cletrac meets the Spring rush when time is limited, weather unsettled and help scarce and costly.

It replaces four to eight horses, **works** longer hours and more days, saves time and cuts costs.

A Cletrac speeds up plowing and fast plowing pulverizes the soil and cuts down work on the seed bed. It travels easily over soft and sticky ground, turns short, gets the corners and swings back to the furrow quickly. Puts more acres under cultivation and helps produce bigger crops.

Besides plowing it prepares the seed bed, harvests the crop and does hauling. In winter when horses are idle, eating expensive food and getting daily care, the Cletrac is busy clearing roads and sawing wood. When not working its keep costs nothing.

The quick popularity of the Cletrac has led to a bigger output with lower manufacturing costs. That's why we can offer an *improved* Cletrac—and at the same time lower the price from \$1585. to \$1395., f. o. b. Cleveland.

You are going to want a tractor some day. Get all the information on tractors now, while you have time to study the various makes carefully. "Selecting Your Tractor" is an interesting booklet that tells you all about the Cletrac—write for it today.

The Cleveland Tractor Co.

Largest Producers of Tank-Type Tractors in the World

19123 Euclid Avenue

Cleveland, Ohio

adoption of the tractor. And it is expected to furnish considerable data as to the number of horses eliminated, the change in equipment required, different amount of man labor used, yield per acre before and after and the cost per bushel. In general the economic value of the tractor on the farm is to be investigated.

Professor Hughes is working in co-operation with the United States Department of Agriculture bureau of the farm management.

OHIO LIVESTOCK SHIPPERS ORGANIZE

Of considerable importance to Livestock shippers was the meeting held in Columbus, Ohio, at the Southern Hotel, March 8 and 9, 1920. There were present more than 100 livestock farmers, county agents and delegates from livestock shipping associations representing thirty-one counties.

An organization known as The Ohio Federation of Cooperative Livestock Shipping Association was perfected, of which F. E. Perry, Leipsic, Ohio, was elected president, and T. D. Phillips, Columbus, Ohio, elected secretary.

Resolutions suggesting the following were offered: Pro-rating and home grading as far as practical, protest against increase in commission charges on cooperative shipments, a uniform system of grading and marking animals for shipment, and the investigation into the cost of production of the several kinds of livestock.

FARM HOME CONVENIENCE EXHIBITION TRAIN

The Department of Agricultural Engineering, working with the Extension Department of the College of Agriculture, succeeded in obtaining and equipping a train with modern farm home conveniences to be sent over Ohio for

WHEN YOU THINK OF

FLOWERS

GIVE US A TRIAL.

WE FURNISH THEM FOR ANY OCCASION.

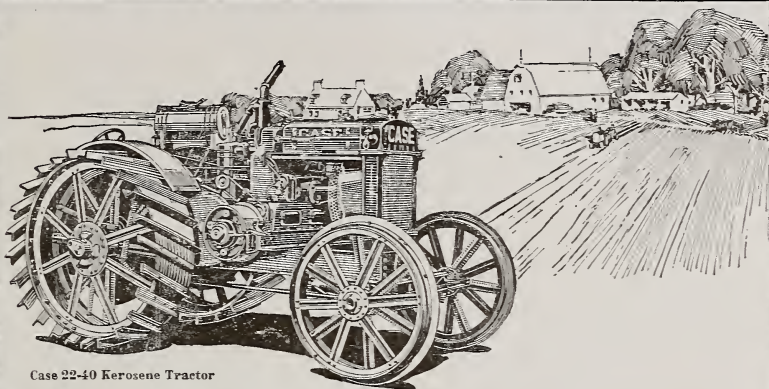
Our Corsage Bouquets are original and sure to please the Ladies

F. C. VIERECK FLORAL SHOP

150 EAST STATE STREET

Bell, Main 6569

Citizens 9402



Case 22-40 Kerosene Tractor

We could build Case Tractors cheaper —but they would cost you more!

Built into every Case Kerosene Tractor is a high degree of immunity from frequent repairs, replacements and undue wear. It would cost less to use iron castings in many places instead of the drop-forged steel we do use; but it would cost *you* far more for replacement of broken and worn out parts.

We could save a lot by using cast-iron open gears instead of cut steel gears running in oil-tight housings; but later on, you'd pay many times the difference for extra parts, and lose more by delay.

Thus, all through, in design, material, workmanship and equipment, we build Case Kerosene Tractors the best that they can be built instead of building cheaply and "passing the buck" to you.

Case Kerosene Tractors are built in a standardized design of three sizes: 10-18, 15-27 and 22-40 h.p. respectively and are uniform in dependability, durability and simplicity of operation and adjustment.

Back of Case Kerosene Tractors is the great line of power farming machinery built by the J. I. Case Threshing Machine Co., including equipment for keeping a Case Kerosene Tractor profitably employed throughout the year.

Write for free catalog descriptive of Case Tractors, and listing our great line of tractor drawn or driven machinery.

J. I. CASE THRESHING MACHINE CO., Inc.
Dept. CL-4, Racine, Wis., U. S. A.
Making Superior Farm Machinery Since 1842

To avoid confusion, the J. I. CASE THRESHING MACHINE COMPANY desires to have it known that it is not now and never has been interested in, or in any way connected or affiliated with the J. I. Case Plow Works, or the Walrus Tractor Company, or the J. I. Case Plow Works Co.



Look for the
EAGLE
Our Trade Mark



educational purposes. The train was loaned and operated free of charge by the New York Central railroad.

During Farmers Week the train was on exhibition at the University switch. The schedule arranged for the tour of the state by the train began February 2 and was completed February 28. Each day three stops were made, the first one 9 to 11:30 a. m., second 1:30 to 4 p. m., and then 7 to 9:30 p. m. In all there were sixty-seven stops, each of which had an average attendance of 300.

It had been planned that the first hour and thirty minutes of the stop should be used for the demonstration and operation of the equipment, and the last hour should be used for two lectures. One lecturer represented the Home Economics Department and the other the Agricultural Engineering Department. However, the attendance was so large that the equipment was

kept running during the whole stop and both lectures were repeated so that the large number could be accommodated.

One car was equipped by the Delco Light Company under the supervision of the Agricultural Engineering Department. The car was partitioned to make a number of rooms. In the laundry room were: an electric lighting plant; an electrically operated washing machine; a water supply unit; an electric iron; and a butter churn operated by electricity. Next there was a completely equipped modern kitchen. Then a completely equipped bath room. And the fourth was a completely equipped living room.

The second car carried a second electric lighting plant which furnished the power to operate a milking machine, cream separator, butter churn, washing machine and an electric iron. A water supply unit and a vacuum cleaning plant, also, had been installed. Then

When You Are in Need of Our Lines, Remember

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313-21 SOUTH HIGH ST., Opposite Southern Hotel

High Grade General Office Stationers, Printers, Bookbinders, Legal Publishers

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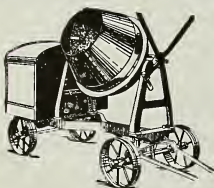
TWO STORES Near the Campus

Selling Everything for Your Better Appearance in

MEN'S WEAR AND HATS

COLLEGE JEWELRY, PILLOWS and PENNANTS

The **MENSWEAR** Shop **ELEVENTH AND HIGH
SIXTEENTH AND HIGH**



Concrete Mixers

With or without Power. Built in many sizes. Send for Mixer Catalogue and Book on "How to Make Concrete."

The JAEGER MACHINE Co.

113 Dublin Ave., Columbus, Ohio.

HERCULES DYNAMITE

Dig Your Ditches With Hercules Dynamite

Through tangled southern swamp land, through gumbo of the middle west, or through muck or boulder-filled clay of the north, Hercules Dynamite easily digs clean cut ditches, leaving no spoil banks. "We have found this the most practical, economical and quickest method," wrote the people who blasted the ditch shown below.

Our Agricultural Service Men will aid you in shooting test sections. Ditches from three to fifteen feet wide, from two to six feet deep have been blasted at from twenty to forty cents a cubic yard, including labor costs.

"Progressive Cultivation," a sixty-eight page book, will give you complete information about the use of dynamite in blasting ditches, removing stumps or boulders, tree planting and subsoiling.

Send for this book today, and state your problems to our Agricultural Department.

*Hercules Dynamite is sold by leading
hardware and implement dealers*

*Section of 10 miles of Ditch
Blasted with Hercules Dynamite. Paris, Henry Co., Tenn.*

HERCULES POWDER CO.

1004, Orange Street, Wilmington, Del.

Gentlemen: Please send me a copy of "Progressive Cultivation." I am interested in dynamite for _____

Name _____

Address _____

there were miscellaneous household conveniences operated from a line shaft; a power washer, having its motor underneath the machine; a water heating plant; simple hot and cold water installation.

The Willys Auto Light Corporation equipped one car under the direction of the Department of Agricultural Engineering. It was arranged with a bed room, bath room, dining room, kitchen, and a household convenience power room. Among the household conveniences were: an electric lighting plant, a water supply system, a washing machine, butter churn, sewing machine, grindstone, and an electric fan were driven by electricity from the lighting plant, also an electric hot plate and toaster. Besides these there were a vacuum sweeper and a kerosene water heater.

There was no duplication in any of the equipment. Each machine repre-

sented a different type of that particular kind of household convenience.

The lecture car was fitted as a lecture room and furnished with a lantern and ground glass screen for the use of lantern slides. A fifth car was for the exclusive use of the exhibitors.

After the completion of the tour of Ohio the train was taken over to Lafayette, Indiana. Some of the equipment was changed and the train was ready for a tour of that state. The train started March 15 and returned April 16. The same daily schedule was used in Indiana as in Ohio.

Bulletins were distributed by the Department from the train. But no commercial circulars or sales talks were allowed. The whole scheme was strictly an educational project.—O. R. Keyser.

"Bob" Caldwell, '18, has recently purchased a fruit farm in Hamilton county, near Cincinnati.

YOU ARE INVITED TO
VISIT THE OLD RELIABLE

Baker's Art Gallery
COLUMBUS, O.

STATE AND HIGH STREETS

For the Best Photos

The Largest, Finest and Best Equipped Gallery in America.
Special Rates to All O. S. U. Students.

CLUB PINS for Boys' & Girls' AGRICULTURAL CLUBS

B

BASCOM BROS.

1585 North High Street

COLUMBUS, OHIO

Doubly Welcome

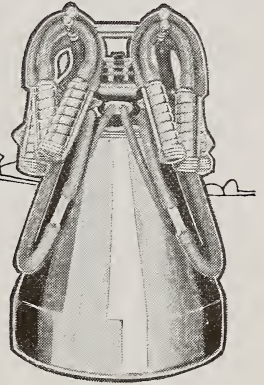
you are when you come with a box of our toothsome candies. Every woman's heart melts at the sight of luscious sweets, such as we sell. Step in today and get a pound or two-pound package as a special gift for her. Select your own assortment if you like.

HENNICK'S
AT THE GATE OF THE CAMPUS



S. E. VAN SLYKE

Two Men With the Perfection Milker Take the Place of Five Men Milking by Hand on S. E. Van Slyke's Farm.



WHEN asked: "How many cows can a milking machine take care of in an hour?" S. E. Van Slyke, a practical dairyman who has owned a Perfection Milker for four years said: "That all depends on the cows and the operators of the milker. We find that two men can milk as many cows per hour as five or six did by hand and do it much more easily. The Perfection sure is a time saver for the farmer."

Better Than Hand Milking on A. R. O. Test

"The first winter we used the machine we tested a number of two-year-old heifers on seven-day A. R. O. work. As they had never been milked before we did not use the milking machine on them until the test was completed. You can be sure we were both surprised and pleased to find that their milk flow increased when the Perfection was put on them.

"As they were milked four times a day for some time with the Perfection without any udder trouble, we are confident the machine will not hurt the cows as long as they are rightly used. We hope to do considerable A. R. O. work in the next year and will use the Perfection for all of it."

Names, Addresses and Catalog Sent Free

The many satisfied owners are the best recommendation for the Perfection. We will be glad to send you Mr. Van Slyke's address together with the names and addresses of many other dairymen to whom you can write. We will also send you FREE, "What the Dairyman Wants to Know," the book that answers every question about milking machines. Write us today.

Perfection Manufacturing Company

2143 E. Hennepin Avenue

Minneapolis, Minn.

The Perfection is the Milker with the Downward Squeeze Like the Calf.

PERFECTION MILKER

BROSMER'S

1591 North High
Opp. E. Eleventh Ave.

**HOME - MADE CHOCOLATES,
BONBONS, ICE CREAMS, ICES
AND BAKED GOODS FRESH
EVERY DAY**

We make a specialty of Butter Creams, Bitter-Sweets, French Pastries and Salted Nutmeats made fresh daily.

BOTH PHONES

Nitrate of Soda

IN CAR LOTS AT LOWEST
WHOLESALE PRICE

Likewise less than car lots for shipment at all times from Columbus, O. Also Nitrapo (15% nitrogen, 15% potash) and all domestic and foreign potash salts. Also manufacturers of

Arsenate of Lead Powder

Arsenate of Lead Paste

Calcium Arsenate

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Paris Green, Etc.

Write us for anything in fertilizer or spray line

Nitrate Agencies Co.

408-9 Central Nat'l Bank Bldg.
COLUMBUS, OHIO.

FARM BILL INCREASED

The Senate agricultural committee has made appropriations for the agricultural department for the next fiscal year to the amount of approximately \$31,972,000. This was \$1,722,000 more than the bill as passed by the house.

The increases authorized by the Senate committee are to include \$500,000 for the quarantine and eradication of the corn-borer in the New England states; \$300,000 for the eradication of the boll worm in long staple cotton areas and \$147,000 to combat black rust in wheat.

ALUMNAE NOTES.

Mrs. Richard B. Morrow (Mary Betz, '13) and daughter of Richmond, Indiana, are visiting Mrs. Morrow's parents for the Easter holidays. Mrs. Morrow was previously with the Extension department.

Miss Anna R. Van Meter has been appointed acting head of the Home Economics Department at Ohio State University.

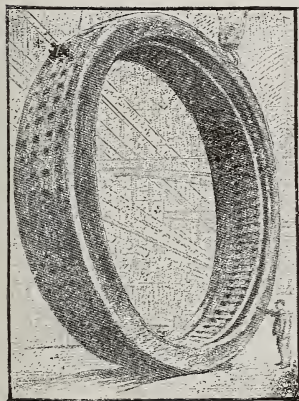
Miss Maud Hathaway has resigned as instructor in the Home Economics Department of this University.

Mrs. Grace Walker, instructor in the Home Economics Department, is recovering from illness due to operations. It is not expected that she will be able to resume her work for the rest of this semester.

Announcement has been made of the engagement of Miss Jeannette Bonar, '19, of Columbus, Ohio, to Mr. Guy Miller, '19, of Warren, Ohio. Miss Bonar has been secretary of Smith-Hughes work since her graduation. Mr. Miller is engaged in County Agent work with headquarters at Warren.



**Mississippi River Power
Company, Keokuk, Iowa**



A casting for one of the huge water-wheel driven generators installed in the Mississippi River Power Company's plant at Keokuk. This installation will ultimately consist of thirty of these machines, giving a total capacity of 216,000 kilowatts (300,000 horse-power). It is the largest hydro-electric development in the world. The General Electric Company builds generators for water-wheel drive in sizes ranging from $37\frac{1}{2}$ to 32,500 kilowatts and the aggregate capacity of G-E units now in successful operation is in excess of four million horse-power.

Utilizing Nature's Power

ELECTRICAL energy generated by water power has grown to be one of our greatest natural resources—and we have only begun to reach its possibilities. It mines and refines our ores, turns the wheels of industry, drives our street cars and lights our cities and towns. The power obtained from Nature saves many million tons of coal every year.

At first the field of its utilization was limited by the distance electricity could be transported. But soon research and engineering skill pointed the way to larger and better electrical apparatus necessary for high-voltage transmission. Then ingenious devices were invented to insure protection against lightning, short-circuits, etc., which cause damage and interrupt the service. And now all over the country a network of wires begins to appear, carrying the magic power.

The General Electric Company, with its many years' experience, has played a great part in hydro-electric development. By successfully co-ordinating the inventive genius of the company and its engineering and manufacturing abilities, it has accomplished some of the greatest achievements in the production and application of electrical energy.

The old mill wheel of yesterday has gone. Today the forces of immense volumes of water are harnessed and sent miles away to supply the needs of industry and business and the comforts of the home.

General Electric Company

General Office
Schenectady, N.Y.

Sales Offices in
all large cities

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"Accomplishment in the Dairy"

The increasing popularity of milk products is largely due to the educational work of the Agricultural College.

The Agricultural College has not only demonstrated the exceptional food value of milk, but has also educated the dairyman in methods of manufacture that insure to the consumer a wholesome, nutritious dairy product entirely free from harmful bacteria and insanitation.

These methods have been assisted and made possible by the aid of



Wyandotte
Dairyman's
Cleaner and Cleanser

a cleaner which provides the most efficient, sanitary cleanliness to dairy equipment, and for this reason it bears the endorsement of the Agricultural College of the United States and Canada.

Order from your supply house. It cleans clean.

The J. B. Ford Co., Sole Mnfrs.,

Wyandotte, Mich.

APPEALING TO RURAL PEOPLE.

(Continued from page 326)

manner and he will be better able to persuade his readers.

Mr. Wilson, who has been quoted in this article, advises secretaries of chambers of commerce to read occasionally the "want ads" in the daily papers. One of the merits of the "want ad" columns is that every word is devoted to telling what people want and how they want it. A story is told about an unemployed man who advertised for work in a Chicago paper. The usual "situation wanted" did not bring results and he had spent almost all the money he had. Finally he asked to have inserted something new in "want ads." It was, "In the name of God, must an industrious and reliable man starve in Chicago for want of work?" It brought results. The advertisements

in the daily press do not have great literary merit, but persuade men and women to do certain things. Therefore we must respect the printed word that accomplishes the purpose for which it is used.

Pictures in some form are being more generally used today as one of the best forms of appeal. People enjoy looking at pictures and a speech that is delivered in connection with slides or films seems to make a greater impression than it would if they were not used. Not every speaker can talk effectively while using slides. It is something that may be learned by practice. The object in having the pictures is not to entertain the audience but to help to arouse their interest and get them to have a better appreciation of the subject which is being presented.

Instead of pictures, maps and charts may often be used to advantage. Care



TOP DRESSING TALKS, No. 6

Ammonia Pays in the Orchard

Ammonia is the most important fertilizer element used in fruit production.

It is ammonia that promotes the vigorous wood growth so necessary for the formation of fruit spurs and fruit buds.

Quickly available ammonia added before blossom time will invigorate the fruit buds and increase the amount of fruit set.

The failure of the fruit to set and the early falling of fruit is generally due to ammonia starvation.

In some sections an early application of quickly available and non-leaching ammonia has increased the yields four and five times that of unfertilized trees.

ARCADIAN

Sulphate of Ammonia

Arcadian Sulphate of Ammonia is the best nitrogenous fertilizer for fruit production. It contains one-third more ammonia than any other top-dressing and this ammonia is all soluble, quickly available and non-leaching.

It can be applied early and it will last throughout the season. Its fine dry crystals make it easy to apply by hand or machine.

Give your orchard and your small fruits a top-dressing of **Arcadian Sulphate of Ammonia** and note results. Apply 100 to 150 pounds per acre over the area of feeding roots just before blossom time. You will use it again. Place your order now.

Write for free bulletins, "Fertilizing the Apple Orchard," No. 85-c, and "Sulphate of Ammonia for Vegetables," No. 89 c.

Baltimore, Md.
Atlanta, Ga.

The *Barrett* Company

AGRICULTURAL DEPARTMENT, NEW YORK.

Medina, Ohio.
Berkeley, Cal.

Spring Cleaning

Should be sent in early for best service.

GARMENTS RE-LINED, ALTERED, REPAIRED

Clothes last longer when thoroughly cleaned by

LEHMAN, Dry Cleaner

12th Ave. and High. Plant Opp. Olentangy Park.

We insure your garments against Fire and Theft Loss.

Prompt Delivery Service—Both Phones

needs to be exercised lest too many statistics or facts be placed on one chart. Better use more charts and have fewer points on each one. The idea in using them is to make the subject clearer, not to make it more complicated. Sometimes the facts which are placed on the charts may be printed in different colors and this will help to make prominent the points that should be emphasized.

Those who are leaders in their communities should give attention to methods of appealing to rural folks. The person who is making the appeal must be in earnest and have a real message or his work will not be a success although he might talk glibly and have fine pictures or charts to show his audience. The success of an appeal, therefore, depends upon the person who makes it and upon the way in which it is made.



C. K. SEIBERT, President

I. D. SEIBERT, P. & Gen'l Mgr.

G. H. WOODROW, Sec'y & Treas.

The Fifth Avenue Floral Company

Cut Flowers, Plants and Corsages

OFFICE AND GREENHOUSES

518-552 West Fifth Ave.

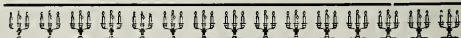
Citizens 16052.

Bell, North 278

STORE, 120 EAST BROAD ST.

Citizens 085.

Bell, Main 2439



Robert M. Salter, '13, now has two duties to perform. He is not only soil chemist at the Experiment Station at Morgantown, W. Va., but is also instructor of soils at the University of W. Va.

The Moline

Tractor is Universal

6 Indispensable Results

The principle of doing all field operations with one man sitting where he can watch his work is correct, or farming has always been done backward, and the operator would always have ridden or led his horses instead of driving them.

The Moline Universal Tractor places the power of nine big horses where the horses stood — is driven just like horses are driven, from the seat of the implement, and hitched up to any implement just as horses are hitched.

No duplication by horses *Because*

Does all field work, including cultivating, harvesting and belt work

A large saving in labor *Because*

One man completely operates both tractor and all implements

Great ease of operation *Because*

A single seat in the center of all controls of tractor and implement

Can back and turn short *Because*

Single unit of operation — tractor and implements form but one unit

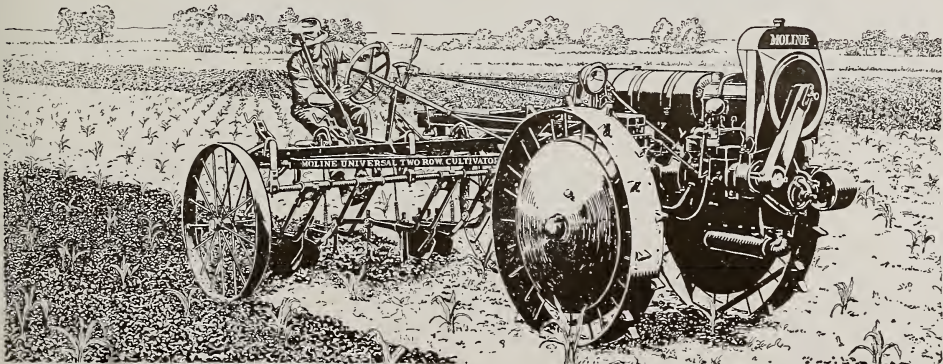
Better and faster work *Because*

Operator sees all his work — "Foresight is better than hind sight"

Power used as horses are used *Because*

Tractor power in front of the work with operator behind the work

Utility Is Not Sacrificed for Price



If desired you can use the "drag behind" or horse drawn implements you now have with the Moline Universal Tractor, the same as with other types of tractors.

See your Moline Dealer or write our nearest branch for full information.

Moline Plow Company, Moline, Ill.

Branches at:

Atlanta
New Orleans
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Columbus, O.
Jackson, Mich.

Please mention THE AGRICULTURAL STUDENT when writing advertisers.

PRIDE GOETH BEFORE A FALL

(Continued from page 39)

saw his defeat, the exultation of Si, himself the laughing stock of his neighbors.

With dragging feet he pulled himself inside the room, looked up slowly and suddenly became as cold and immovable as a figure of ice and snow. There, in front of the desk, stood Si Beckum and his son Jerry.

In speechless amazement the two neighbors gazed at one another for several long moments. Then the better nature of each rose to the surface. Realizing the humor of the situation, they grasped hands, while the large empty room resounded with their hearty laughter.

"Order in the court," commanded the officer, who possessed a stern sense of the responsibility and no imagination.

"But how in all creation, Si, did you get in here?" demanded Josh.

"Arrested by the humane officer for beating my horse," gloomily answered Si.

"Well, I'll be blamed," chuckled Skeeler, and his heavy figure shook with merriment.

After they had both been fined considerable sums for their misdemeanor the cases were dismissed and the company left the office.

"Josh," earnestly began Si, as they lingered outside the door, "you said it would take a hard jolt to wake me up and it has. The law has left me pretty stiff but I'm much obliged to it. I see things in a different light now and I'm going to begin a reform as soon as I get home. And the first thing that I take in hand will be—*myself*."

H. B. McClelland, '10, has been made head miller and mill superintendent of the Phoenix Flour Co. He resides in Phoenix, Ariz.

Boost Your Garden

NITRATE OF SODA will give it a quick and robust start—200 lbs. to the acre, or 2 lbs. for a plot 20x20 feet for young plants.

Help yourself and others to better fruits and vegetables. Address

Dr. William S. Myers

Chilean Nitrate Committee

25 Madison Avenue, - New York 

Have You Renewed Your Subscription to *The Agricultural Student*

DO IT NOW

Business Manager
Agricultural Student
O. S. U., Columbus,
Ohio



Placing the reinforcing steel of the door opening.

A Natco Silo

*Costs a Little More—
Lasts a LOT Longer*

IT does cost more to build with everlasting Natco Hollow Tile than with materials that soon decay, but it's far cheaper in the long run. A Natco Silo will not rot, burn, burst or blow down. It has no hoops to tighten, needs no painting and seldom any repairs. You can pass a Natco Silo to your children practically as good as new. Or the farm will bring more should you wish to sell.

Farmers who figure costs closely are using Natco Hollow Tile for silos, dairy barns, hog houses, dwellings, etc. Our book "Natco on the Farm" describes and pictures many such uses. Send for it today—*no charge*. Ask your building supply dealer to quote you on Natco Hollow Tile.

National Fire Proofing Company
1212 Fulton Building
Pittsburgh, Pa.

23 Factories assure a wide
and economical distribution



Foundation and bottom courses of a Natco Silo. Note the still air spaces and the steel reinforcing bands.

For Cheese Factorise and Creameries

HANSEN'S DANISH Dairy Preparations

Pure, Concentrated, Ready
To Use.

For uniformly best results in making finest cheese, butter and buttermilk. America's standards backed by years of specialized experience, used in the country's finest creameries and cheese factories.

Hansen's Danish Rennet Extract

Hansen's Danish Cheese Color

Hansen's Danish Butter Color

Bulk, 1 gal. or larger.

To properly ripen the cream for butter, and the milk for cheese and commercial buttermilk, use Hansen's Lactic Ferment Culture.

For sale at all dairy supply stores.

Chr. Hansen's Laboratory, Inc.
Little Falls, N. Y. Milwaukee, Wis.
Toronto, Can.

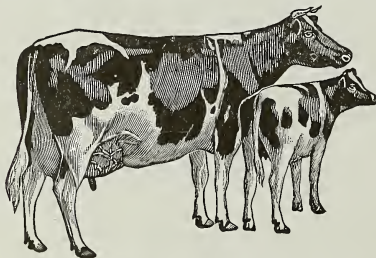
Interesting treatise, "The Story of Cheese," by J. D. Fredericksen, free on request.

Students May Readily Inform Themselves

as to the Productive Characteristics of the dairy Breeds and Their Competitive Advanced Registry Standing by Sending to us for a Free Copy of "Dairy Breed Comparisons No. 7."

This instructive, illustrated 24-page pamphlet contains illustrations of high record Holsteins, Guernseys, Jerseys, and Ayrshires, also the five highest 7-day Holstein records; a synopsis of yearly records from 600 to over 1,000 lbs. fat; the leading cows of each breed for yearly production in seven classes; ten highest record cows of each breed; the average yearly breed production from a summary of 2,387 Holstein, 4,086 Guernsey, 4,297 Jersey, 1,752 Ayrshire, and 121 Brown Swiss records.

Just drop a postal card.



Holstein - Friesian Association of America
F. L. HOUGHTON, Sec'y.
154 Holstein Building, BRATTLEBORO, VT.

ECOLOGY IN THE SERVICE OF AGRONOMY

(Continued from page 334)

grow the same crop everywhere without heeding to the lesson that can be learned from even the least sophisticated car window survey, namely, that with every few hundred miles travel in almost any direction there is a noticeable change in the vegetation. This change is a visible response of the vegetation to changing environmental conditions.

In summarizing the above remarks it should be noted that there is at present a very great need for cooperative work among the various investigators who come into contact with plants. The Ecological Society of America, having passed long since through its initial stages decided at the St. Louis meeting to venture upon the publication of a Journal. Not only is it hoped that the members of the American Society of Agronomy will offer reports of their investigations, but is believed that the kind of articles this new journalistic venture will contain will be just the kind of botany, zoology and biology agriculturists have long been looking for. Not only must there be new applications of the old knowledge but those endeavoring to make applications will languish unless there are continually new ideas to apply. The relation of agriculture to ecology is one of mutualism.

Frank M. Long, '19, now holds a position as dairy chemist with the Akron Beverage and Cold Storage Co., Akron, Ohio.

Clarence E. Rowland, '19, is now county agent of Columbiana county, being located at Lisbon, Ohio.

Raymond C. Gauch, '18, is an instructor in the department of economics of O. S. U.



The Feed that makes the Yield



Cut Down Your Cost

A number of the most successful dairy-men testified before the Federal Milk Commission, which has been fixing the price of milk from the producer to the consumer, that they had cut down their costs of production by feeding **Corn Gluten Feed** and wheat bran freely in grain rations they mixed themselves.

The Commission must have been convinced by what these representative good dairymen had to say about different feeds and the economy of a man's mixing up his own rations.

For, in arriving at the price it thought the dairyman ought to get for his milk, the Commission based its calculations on home-mixed rations in which Corn Gluten Feed was a principal basic ingredient.

Made by
Corn Products Refining Co.
New York Chicago

If you have not yet fed Buffalo Corn Gluten Feed, if you want to know more about how to feed it, and your dealer doesn't happen to have it, write us—giving his name.

THE FARM HOME GARDEN

(Continued from page 337)

supported on pipe or wooden posts about five or six feet above ground. These lines of pipe are drilled at 3-foot intervals in a straight line for the insertion of small distributing nozzles, which discharge the water evenly over the surface of the ground. These nozzle lines revolve on their supports so that the sprays of water may be thrown on either side of the pipe line. The water must be delivered to the nozzle or distributing lines under a pressure of from 25-30 pounds. If strict economy in equipment is necessary, a single line of pipe may be made to do duty for the entire garden by shifting from place to place. The expense of installation of such a system is quite large, but not prohibitive and its use will serve to insure the garden against

failure so far as the moisture supply is concerned.

Controlling the Pests.

One of the most trying situations in gardening comes, when, after a generous expenditure of hard work, the crops are reaching a promising maturity and some pest, insect or disease appears with its defiant challenge and proceeds to obliterate all evidence of earlier energy and skill. The counter attack must begin at once if the fruits of one's labor are not to be swept away, though in the case of most plant diseases an aggressive policy or protective spraying will succeed better than one of watchful waiting.

There are hundreds of more or less successful remedies applicable to the various pests attacking vegetable crops, but we can only mention four in addition to that of good culture which

Prof. Rader's Dancing Calendar

NEIL AVENUE ACADEMY

Take Neil Ave. Car and get off at Poplar Ave.
647 Neil Ave.—Phones: Citiz. 4431; M. 6189



Beginners' Class Tuesday evening, March 23, 7:30.

Afternoon Class Thursdays, 2:30.

Assembly Nights—Mon., Thur., Fri. and Sat.

Tuition for Beginners—Per term of 10 lessons, ladies \$5, gentlemen \$6; juveniles, per term of 12 lessons, \$5; private lessons, 5 for \$6.

Tuition can be paid \$1 a lesson until paid. Private lessons can be had afternoon or evening. We aim to teach you to dance in one term.

OAK STREET ACADEMY—827 Oak St.

Phones—Citiz. 7105; Residence, Citiz. 4431; Main 6189

A strictly private place for club dances, card parties and for classes that organize for special instruction.

Could you work on a diet of lettuce, spinach and water?



Certainly not. Neither can a cow hold up a heavy milk yield on grass alone. Spring grass and spring weather do increase a cow's milk flow, but that is because grass is stimulating, and spurs the milk-making organs to greater activity. When a cow's chief business was nourishing a calf, this proved a wise provision of nature. It gave the calf a good supply when it needed it, and it made no difference if the cow did suddenly fall off later in the season.

Why a cow falls off in milk

On grass alone, the cow gives up more nourishment in her milk than she receives in her feed. She makes up the deficiency by drawing upon the protein, carbohydrate and mineral elements in her own body. As her bodily supply is diminished she becomes thin and weak. The minerals taken from her bones, leaves them soft. This is why many good cows become sway-backed, if not properly fed.

Mrs. Cow says:

I've turned the tables on the boss. By the time he gets through with the diet I've laid out for him, he'll know why he was disappointed in my milk production last July and August.

Keep up the milk flow with Purina Cow Chow

the pure ration, containing no screenings, hulls, or cheap fillers. It furnishes the right kind and the correct percentage of protein, carbohydrates and other elements to properly maintain a cow's body and produce her maximum milk flow on grass.

6 lbs. more milk per day for 2 lbs. Purina Cow Chow

is what other dairymen are getting. Right now, you can make more money by feeding Purina Cow Chow because it will enable you to check the usual late summer milk slump. Write us today if your dealer is sold out.

RALSTON PURINA CO.

ST. LOUIS, MO.

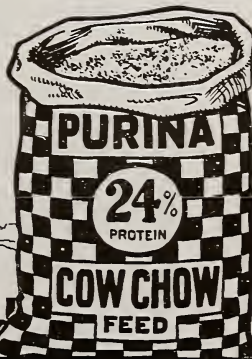
Ft. Worth, Texas.

Nashville, Tenn.

Buffalo, N. Y.

Sold in Checkerboard Bags Only

Purina Cow Chow



is always to be regarded as essential to success in any case.

First, there are the mechanical remedies, especially applicable to insects consisting in hand picking and the use of protective plant covering as in the case of the cucumber beetle. Second, there are the poison sprays for insects in either the liquid or dust form which are to be advised for the control of most all leaf-eating insects. These consist in arsenate of lead and Paris green, chiefly, though there are several others.

Third, there are the contact sprays for the insects having sucking mouth-parts and which cannot be poisoned. Kerosene emulsion and nicotine sulfate or Black Leaf No. 40 are the most important of this class of sprays. Finally, there are the sprays for control of plant diseases. Bordeaux mixture is the chief member of this kind of material and when used properly will control potato blight, tomato blight, celery blight and numerous other leaf diseases.

But in these cases an ounce of prevention is worth many pounds of cure.

Its Worth While.

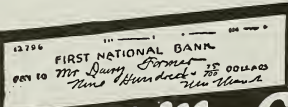
In spite of all the difficulties to be overcome and discouragements to be faced, an effort at gardening is worth while economically, as well as physically. The need is great and the reward, in the majority of cases, will be ample.

P. L. Pugh, '16, is now principal of the high school at Findlay, Ohio.

A. H. Gibson, ex-'20, is located in San Antonio, Texas, where he has taken up commercial aviation, following his discharge from service.

Lewis S. Pence, '19, is now connected with the Springfield Dairy Products Co., in their plant at Xenia, Ohio.

Horace M. Kidd, '19, who toured the state as demonstrator on the special train equipped with modern farm conveniences, is with the Delco Light Co. on a similar train in Indiana, in connection with the Purdue University.



Get Bigger Milk Checks

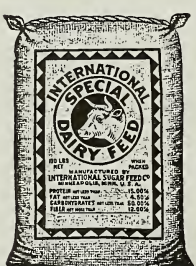
How?

Simply Feed your cows

International Special Dairy Feed — the feed that lowers your feed bill and increases the milk flow. An army of farmers in every dairy section of America recommend and use it.

International Special Dairy Feed

“Makes More Milk”

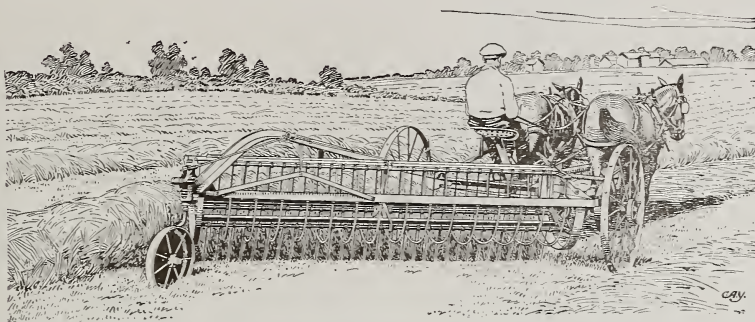


There's only one best method to feed your herd. There's only one best method to get the most milk, and that's the International way. This fact has been proved by practical, common-sense dairymen who have tested International Special Dairy Feed over long periods. And these tests proved conclusively that this unusual feed produced more milk than any other similar feed on the market.

Order a Trial Ton from Your Dealer Today

INTERNATIONAL SUGAR FEED CO.

MINNEAPOLIS, MINN.
Mills at Minneapolis and Memphis



The Correct Way to Air-Cure Hay

It isn't sun-drying that puts quality into hay, but **air-curing**. And hay is air-cured best when side-raked and teded into light, breeze-sifting windrows such as those that trail off in the wake of the **International Combined Side-Delivery Rake and Tedder**.

With this machine it is possible to follow closely behind the mower, as it has left-hand delivery, and rake and ted the hay before the leaves begin to wilt. The teeth of the rake strike the heads of the hay first and rake clean because of the fact that they work against the leave crotches so that the stems cannot slip past the rake teeth. The hay is turned completely over and deposited in snug, airy windrows, through which the air circulates freely, curing evenly both stems and leaves with its magic touch.

Side-raking and teding is good haying practice, and everywhere progressive farmers are recognizing this fact. Properly air-cured hay is **quality** hay—and there is no better implement for air-curing than the **International Combined Side-Delivery Rake and Tedder**, sold by International dealers everywhere.

INTERNATIONAL HARVESTER COMPANY

CHICAGO

OF AMERICA INC.

U S A



THE founders of Avalon Farms Company are practical hog-raisers. When Hog-Tone was perfected it was first tested on the herds at Avalon Farms, near Churubusco, Ind. The excellent results achieved resulted in the conviction that other hog-raisers would find it valuable.

From the very beginning we have offered Hog-Tone to every hog-raiser on 60 Days' Free Trial. Our plan of merchandising Hog-Tone is still the same.

We send you 60 days' supply of Hog-Tone for all your hogs. You pay nothing when you get it. At the end of the 60 days you pay if you are completely satisfied that Hog-Tone has accomplished all claimed for it. Otherwise the charge is canceled. You, alone, decide whether you get value received. We believe this is fair, sensible, businesslike. Read the coupon.

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442 West Ohio Street

Chicago, Illinois



■ ■ ■ This Coupon Brings 60-Day Free Trial Treatment ■ ■ ■

W. O. Gandy, President
AVALON FARMS COMPANY
442 West Ohio Street, Chicago, Illinois

I have.....hogs. Ship me immediately
State Number
enough Avalon Farms Hog-Tone to treat them for
60 days. I am to pay nothing now except trans-
portation charges. I agree to report results to you
at end of 60 days and pay for the Hog-Tone at
that time if it has done all that you claim. If it
does not, I will return the labels to you and you
agree to cancel the charge.

Name.....
Please Print Name

P. O.....

R. R. No.....State.....

Shipping Point.....

Name and Address of my Druggist.....

.....

Mr. Hackney has found out by experience that too much protein is injurious—that to secure maximum milk production cows must be kept at top-notch physical condition—the ration must be a health builder, strength and vitality giver. That's why Mr. Hackney likes his cows to have

ARDEN FARMS
J. M. Hackney, Owner

Yours very sincerely,
(Signed) J. M. HACKNEY.

St. Paul, Minnesota
January Third, 1920

BIG "Q" DAIRY RATION is a *Quality* protein ration — when fed in conjunction with SCHUMACHER it supplies just the right amount of protein to stimulate milk production without "burning out" or tearing down the cows' physical condition.

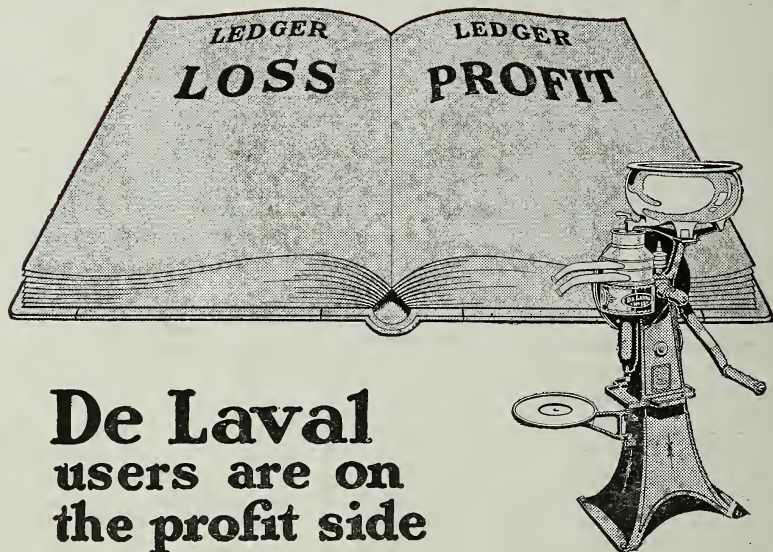
The ideal SCHUMACHER BIG "Q" combination will keep your cows "going strong" month after month, and it's the cow that maintains maximum production over long milking periods that is the profit-producer. Feed dealers everywhere can supply you with these big result-producing feeds. Give them a trial. The best time to start is NOW.

Address: Chicago, U. S. A.



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**De Laval
users are on
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No machine used on the farm returns a larger profit on the investment than a De Laval Cream Separator.

It saves from 25% to 50% of cream twice a day every day in the year over crocks and pans; and from 10% to 25% of cream over an inferior or half-worn-out separator.

With butter-fat at the present high prices these savings mount rapidly. Many thousands of users have found that their De Lavals paid for themselves in a few months. De Laval users are always on the profit side of the ledger at the end of the year.

More De Lavals are used than all other makes combined.

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